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>
> **Christopher Muir**
> **IT Officer**
> **The University of the West Indies**

THE UNIVERSITY OF THE WEST INDIES

The University of the West Indies wanted to re-introduce High Performance Computing (HPC) capability. It needed an experienced project management partner to handle the installation.

At a glance
Country: Jamaica
Industry: Education
Established: 1948
Website: mona.uwi.edu

Challenge
The University of the West Indies, based in Jamaica, has for years outsourced its HPC projects to sister institutions, however, it wanted to bring this capability back in-house to boost its climate studies research. The university needed a project management partner to handle the complex installation.

Solution
Over the course of just three weeks, Fujitsu project managed the delivery and installation of 34 nodes and one head node interconnected by 400TB of InfiniBand® storage, running on 34 blade servers.

Benefit
- The project was completed well ahead of schedule, enabling quicker delivery of HPC
- Fujitsu expedited the delivery, configuration and installation of complex equipment to minimize problems
- A detailed plan, specifying right down to which cable plugs into which port, provided total precision at every stage of the installation

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Customer

The University of the West Indies (UWI) has grown from humble beginnings in 1948 and today offers world class, accredited higher education programs to Jamaica, the region and the world. The Mona campus, located in northern Kingston, encompasses 653 acres of land that was formerly part of two large sugar estates, Papine and Mona. In 1994, UWI formed the Climate Studies Group, a subset of the Department of Physics, in order to understand climate processes and to contribute to global knowledge of climate change.

Products and Services

■ FUJITSU Project Management

Re-introducing a HPC environment for climate studies

In the 1990s, when the Climate Studies Group was established, UWI was using a Convex supercomputer to support its processing and modelling needs. However, by the early 2000s this platform was no longer fit for purpose. Instead, UWI began outsourcing its HPC requirements to other academic institutions, but this was never conceived as a long-term solution.

"We leveraged sister campuses for specific projects, but it became evident that we needed to bring HPC back in-house," explains Christopher Muir, IT Officer, UWI. "Our climate team had been involved in a Nobel prize winning study that garnered lots of publicity. That gave us the confidence to approach the Inter-American Development Bank (IDB) for a grant that would enable us to deploy a world-class HPC platform."

With the funding in place, UWI turned to its infrastructure partner for the hardware, yet it would still need a local team in place to project manage the deployment. Fujitsu acts as UWI's infrastructure partner's local support in the region as it has sufficient local manpower. This made it the natural choice to manage the UWI implementation.

"Many hardware projects here in Jamaica are pushed through Fujitsu – our infrastructure partner supplies the hardware and Fujitsu manages the project from start to finish," adds Muir. "In this case, Fujitsu also formed a partnership with Europe's leading HPC cluster specialist to provide the best mix of abilities to meet our needs."

Detailed planning and close collaboration

UWI's infrastructure partner designed an end-to-end HPC solution based on the Linux® operating system and Bright Cluster Manager™, using 34 nodes and one head node interconnected by InfiniBand and Ethernet networks. Meanwhile, the HPC cluster team designed and built complex computational, storage and database clusters. Fujitsu was then responsible for project managing the deployment and installation.

"This project had a lot of moving parts and was set to a very tight deadline, so making sure all the kit arrived on time and was installed correctly was the main challenge," continues Muir. "Fujitsu created a detailed masterplan so that each of the 20 servers and 34 blades could be plugged into our racks and hooked up to power and networks quickly."

The meticulous approach of Fujitsu to project management enabled the physical installation to be completed in under a week and testing to begin shortly thereafter. UWI was therefore able to meet its deadline.

"We were way ahead of schedule thanks to the Fujitsu team, who called us every single morning to ensure that kit was arriving on time and to see whether there were any issues," says Muir. "This fastidious methodology meant there was no slippage and on the rare occasion that something did fail, it was remedied immediately."

Next-generation HPC in an instant

In total, it took three weeks to install and test the HPC environment, a remarkable achievement in terms of the logistics involved. Furthermore, the project came in under budget, making the most of the funds allotted by the IDB. The result is a world-class HPC platform that puts UWI at the forefront of climate change research.

"Previously, we couldn't run models at high resolution – running a model at 50km scale, for example, could take six months. Now we can scale up to 10km and process it within a few days," comments Muir. "This means we can handle more complex tasks much more quickly."

The Climate Studies Group is the primary user of the HPC environment, but interest is spreading to other subjects, among them Material Sciences, Animation and Biotechnology. In addition, universities from other countries, including Cuba, have been using the system to run their own climate models.

"As an island nation, climate change is of the utmost concern to us and we take it very seriously. This new HPC platform, installed by Fujitsu, is helping us understand how the climate is changing and how we can combat it," remarks Muir. "At the same time, it is providing the tools for other scientists to explore molecular connectivity, genome sequencing and hi-res rendering."

Fujitsu also provides support in the event of failure, giving UWI peace of mind. During installation there was only a single hard drive that needed to be replaced and since then the hardware has been operating without fault.

"We have worked with Fujitsu for many years now and are very comfortable with the team and its dependable service. We were moving into an unfamiliar space but despite the complexities we came out ahead of schedule and budget," concludes Muir. "There was a great plan in place and never any need for ad hoc hacks. Put simply, Fujitsu accounted for every aspect and its approach was phenomenal."

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